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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/777,297	02/12/2004	Gyu-Ho Lu	5649-1206	5272

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EXAMINER	
SOWARD, IDA M	
ART UNIT	**PAPER NUMBER**
2822	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	02/02/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/777,297	LU ET AL.	
	Examiner	Art Unit	
	Ida M. Soward	2822	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *15 November 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *12,15,16,18-31 and 50-64* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *12,15,16,18-21 and 50-64* is/are allowed.

6)☒ Claim(s) *22-24 and 27-31* is/are rejected.

7)☒ Claim(s) *25,26,30 and 31* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

This Office Action is in response to the Applicants' amendment filed November 15, 2006.

Claim Objections

The objection to claims 20-21 has been withdrawn due to the amendment filed.

Claims 30-31 are objected to because of the following informalities:

1. "**conductive layer**" should have been **conductive line pattern** in claims 30-31; and
2. "**gate electrode**" should have been **first and second gate electrode** in claim 31.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 22, 28-29 and 31 are rejected under 35 U.S.C. 102(b) as being anticipated by Huang et al. (6,157,065).

In regard to claim 22, Huang et al. teach a semiconductor device comprising: a semiconductor substrate 40; a first gate line and a second gate line on the semiconductor substrate 40 and spaced apart from each other, the first gate line including a first gate electrode 404 left stacked on a first gate insulation pattern 402 left, and the second gate line including a second gate electrode 404 right stacked on a second gate insulation pattern 402 right; and a conductive line pattern 414 on the first and second gate lines, wherein the conductive line pattern 414 has a first portion (the portion right above 404 left) parallel to the first gate line and a second portion (the portion right above 404 right) parallel to the second gate line, and wherein the conductive line pattern 414 electrically connects the first and second gate electrodes (404 left & 404 right) with each other (Figure 4E, columns 2-3, lines 64-67 and 1-56, respectively).

In regard to claim 28, Huang et al. teach the first portion (the portion right above 404 left) of the conductive line pattern 414 is at least the same length as the first gate line, and the second portion (the portion right above 404 right) of the conductive line pattern 414 is at least the same length as the second gate line (Figure 4E).

In regard to claim 29, Huang et al. teach the conductive line pattern 414 being made of metal (Figure 4E, column 3, line 32).

In regard to claim 31, Huang et al. teach the conductive layer decreasing the resistance of the gate electrode 404 (Figure 4E, column 3, lines 32-33).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 23-24, 27 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Huang et al. (6,157,065) as applied to claims 22, 28-29 and 31 above, and further in view of Buynoski (US 6,518,113 B1).

Huang et al. teach all mentioned in the rejection above.

In regard to claims 23-24, Huang et al. further teach the first and second gate lines comprising a metal silicide layer (column 3, lines 23-32).

In regard to claim 30, Huang et al. further teach the conductive layer 414 bridging at least one gate of the metal silicide layer (column 3, lines 23-32).

However, Tsai et al. fail to teach the gate line comprising a doped polysilicon layer.

Buynoski teaches a gate line 28 comprising a doped polysilicon layer (Figure 7, column 12, lines 36-42).

Therefore, it should have been obvious to one having ordinary skill in the art at the time the invention was made to modify the semiconductor device structure as taught by Huang et al. with the semiconductor device having a gate electrode comprising a doped polysilicon layer as taught by Buynoski to obtain high integration density semiconductor devices (column 1, lines 15-18).

In regard to claim 27, Buynoski teaches an interlayer dielectric 122 on the semiconductor substrate 102 planarized to the height of the gate line 128b (Figure 16(A), column 13, lines 22-35).

Allowable Subject Matter

Claims 12, 15-16, 18-31 and 50-64 are allowed.

Claims 25-26 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

Applicant's arguments with respect to claims 12, 15-16, 18-31 and 50-64 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The following patents are cited to further show the state of the art with respect to semiconductor devices:

Komuro (5,652,154) Maeda (6,060,765)

Sato (5,258,645) Tsoi et al. (5,631,484).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ida M. Soward whose telephone number is 571-272-1845. The examiner can normally be reached on Monday - Thursday 6:30am to 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Zandra V. Smith can be reached on 571-272-2429. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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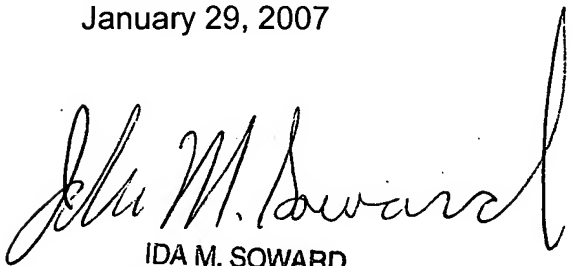
January 29, 2007



IDA M. SOWARD
PRIMARY EXAMINER